

Amendments to the Claims:

1. (Currently Amended) A miniature device comprising:
a body having a reaction chamber disposed therein and constructed to receive a liquid;
a vent in fluid communication with said reaction chamber;
a resistive heater electrically connected to a power source for applying power to said heater;
a temperature sensor disposed on a surface of said body for determining a temperature within said reaction chamber; and
an appropriately programmed computer for monitoring said temperature and operating said power source to selectively apply said power to said heater to facilitate a reaction in said reaction chamber,
wherein said vent enables removal of gas from said reaction chamber thereby preventing a temperature variation in said liquid during said reaction.

2. (Original) The miniature device of claim 1, further comprising a second reaction chamber fluidly connected to said reaction chamber.

3. (Original) The miniature device of claim 2, wherein said second reaction chamber comprises a microcapillary electrophoresis device.

4. (Original) The miniature device of claim 2, wherein said second reaction chamber has an oligonucleotide array disposed therein, said oligonucleotide array including a substrate having a plurality of positionally distinct oligonucleotide probes coupled to a surface of said substrate.

5. (Currently Amended) The miniature device of claim 1, wherein said body comprises at least first and second planar members, said first planar member having a first surface and a well disposed in said first surface, said second planar member having a second surface, said second surface being mated to said first surface whereby said well forms said reaction chamber cavity.

6. (Currently Amended) The miniature device of claim 5, wherein said temperature sensor is deposited on said second surface wherein when said second surface is mated with said first surface, said temperature sensor on said second surface is positioned within said cavity whereby a temperature at said temperature sensor is substantially the same as a temperature within said reaction chamber cavity.

7. (Original) The device of claim 1, wherein said reaction chamber has a volume of from about 0.001 μl to about 10 μl .

8. (Currently Amended) A miniature device comprising:
a body having a reaction chamber disposed therein;
a resistive heater electrically connected to a power source for applying power to said heater;
a temperature sensor for determining a temperature within said reaction chamber; and
an appropriately programmed computer for monitoring said temperature and operating said power source to selectively apply said power to said heater ~~The device of claim 1~~, wherein said reaction chamber has a volume of from about 0.01 μl to about 1 μl .

9. (Currently Amended) A miniature device comprising:
a body having a reaction chamber disposed therein;
a resistive heater electrically connected to a power source for applying power to said heater;
a temperature sensor for determining a temperature within said reaction chamber; and
an appropriately programmed computer for monitoring said temperature and operating said power source to selectively apply said power to said heater ~~The device of claim 1~~, wherein said reaction chamber has a volume of from about 0.05 μl to about 0.5 μl .

10. (Original) The device of claim 1, wherein said temperature sensor comprises a thermocouple having a sensing junction positioned adjacent said cavity, and a reference junction positioned outside of said cavity, said thermocouple being electrically connected to a detector for measuring a voltage across said thermocouple.

11. (Original) The device of claim 10, wherein said detector for measuring a voltage across said thermocouple measures a DC voltage.

12. (Original) The device of claim 10, wherein said thermocouple comprises a first gold film adjoined to a chromium film as said sensing junction and said chromium film adjoined to a second gold film as said reference junction.

13. (Original) The device of claim 1, wherein said resistive heater comprises a chromium film and said electrical connection comprises two gold leads overlaying said chromium film and being electrically connected to said power source.

14. (New) The miniature device of claim 1, wherein said first reaction chamber comprises a PCR chamber.

15. (New) The miniature device of claim 1, wherein said vent includes a hydrophobic vent.

16. (New) The miniature device of claim 1 further including a valve constructed to seal input to said reaction chamber.

17. (New) The miniature device of claim 16, wherein said valve includes a diaphragm valve.

18. (New) The miniature device of claim 1, wherein said reaction chamber is in communication with a sealable opening constructed and arranged for introduction of said liquid into said reaction chamber.

19. (New) The miniature device of claim 18, wherein said sealable opening includes a septum.

20. (New) A miniature device comprising:
a body including at least two reaction chambers arranged in parallel, each said reaction chamber being constructed to separately receive a liquid; each said reaction chamber being in fluid communication with a vent;
at least two resistive heaters electrically connected to a power source for applying power; each said heater being constructed to deliver heat to one said reaction chamber;
at least two temperature sensors for determining separately a temperature within said reaction chambers; and
an appropriately programmed computer for monitoring said temperature and operating said power source to selectively apply said power to each said heater to facilitate separate reactions in said reaction chambers,
wherein each said vent enables removal of gas from the corresponding reaction chamber thereby preventing a temperature variation in said liquid during said reaction.

21. (New) The miniature device of claim 20, wherein at least one of said first reaction chambers comprises a PCR chamber.

22. (New) The miniature device of claim 20, wherein at least one of said vents includes a hydrophobic vent.

23. (New) The miniature device of claim 20 further including at least one valve constructed to seal input to at least one said reaction chamber.

24. (New) The miniature device of claim 23, wherein said at least one valve includes a diaphragm valve.

25. (New) The miniature device of claim 20, wherein at least one of said reaction chambers is in communication a sealable opening constructed and arranged for

introduction of said liquid into said reaction chamber.

26. (New) The miniature device of claim 25, wherein said sealable opening includes a septum.